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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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The Goodyear Tire & Rubber Company
Patent & Trademark Department - D/823
1144 East Market Street
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EXAMINER

FISCHER, JUSTIN R

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 07/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/912,865

Applicant(s)

VICTOR THIELEN, GEORGES
MARCEL

Examiner

Justin R Fischer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oare (US 5,871,600, of record) and further in view of Wolpers (US 5,342,900, of record) and optionally in view of Horpel (UEP 385703). Oare, Wolpers, and Horpel are applied in the same manner as set forth in Paper Number 3, Paragraph 4.

As best depicted in Figure 2A, Oare is directed to a runflat tire having at least one sidewall insert radially inward of a carcass ply, wherein said sidewall insert is formed of a diene-based rubber composition. In describing the conventional additives of said sidewall insert composition, Oare describes the preferred use of (a) a sulfenamide as a primary accelerator and (b) either a guanidine, dithiocarbamate, or thorium compound as a secondary accelerator (Column 18, Lines 35-45). While Oare fails to expressly suggest the use of a specific dithiocarbamate compound (claimed as being 1,6-bis(N,N'-dibenzylthiocarbamotylthio)-hexane or BDBzTH), one of ordinary skill in the art at the time of the invention would have found it obvious to include BDBzTH in the sidewall insert composition of Oare since it represents a well known compound that provides improved ageing stability and reversion stability in similar diene-based rubber compounds, as evidenced by Wolpers. In this instance, Wolpers

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specifically suggests the use of BDBzTH with either sulfenamide or mercapto accelerators for the general manufacture of tire rubber components (Column 4, Lines 4-21 and Column 5, Lines 16-29). Horpel is optionally applied to evidence the recognized use of similar dithiocarbamate compounds in tire sidewall compositions for similar benefits as compared to Wolpers, such as ageing resistance, high flexibility, and high resistance to cracking (Abstract).

Although Wolpers fails to specifically describe the use of BDBzTH in a sidewall insert, the reference more broadly teaches the general use of BDBzTH in diene-based rubber compositions for improved ageing stability and reversion stability. In particular, Wolpers suggests that such a compound can be of great importance for a variety of industries, including vehicle tires (Column 5, Lines 20-29). Thus, since it is well recognized in the tire industry that ageing stability and reversion stability are desired characteristics of sidewall inserts, one of ordinary skill in the art at the time of the invention would have found it obvious to include BDBzTH in the sidewall insert composition of Oare, it being noted that Oare describes a preferred embodiment in which a dithiocarbamate compound is included in the vulcanization system. Furthermore, Horpel evidences the well-known use of similar dithiocarbamate compounds in tire sidewalls for the benefits of ageing resistance, high flexibility, and high resistance to cracking.

Regarding claims 2, 7, and 15, Wolpers suggests the use of BDBzTH in an amount between 1.0 and 4.5 phr (Column 4, Lines 25-30).

With respect to claims 3, 9, and 10, Oare describes the use of carbon black in an amount between 30 and 100 phr (Column 17, Lines 37-40).

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Regarding claims 4, 8, 11, and 14, Oare describes the use of natural cis 1,4 polyisoprene rubber, isoprene/butadiene rubber, cis 1,4 polybutadiene rubber, and vinyl 1, 2-polybutadiene rubbers (Column 16, Lines 26-40). It is noted that one of ordinary skill in the art at the time of the invention would have recognized the polybutadiene of Oare as being syndiotactic polybutadiene. With specific respect to claim 8, this limitation is only required when a rubber coupled with a group IVa metal is selected (claim 4 does not require the use of a rubber coupled with a group IVa metal). It is noted, though, that such a rubber (coupled with metal) is extensively used in the manufacture of sidewall components and one of ordinary skill in the art at the time of the invention would have found it obvious to form the sidewall insert of Oare from a metal-coupled rubber.

Regarding claim 5, Oare suggests the use of several bifunctional sulfur containing organo silane coupling agents in accordance to the limitations of the claimed invention (Column 17, Lines 55-61).

With respect to claim 6, Oare further suggests the filler component contain silica in addition to carbon black, as is well known in the tire industry (Column 17, Lines 51-55).

Regarding claim 12, Figure 2A of Oare depicts a first crescent-shaped, sidewall insert 42 that is disposed axially inward of a carcass ply 38 and a carcass ply 40.

With respect to claim 13, Oare is directed to the use of different cords in the inner and outer carcass plies, wherein a specific embodiment is described in which the inner carcass is formed of high modulus, steel cords and the outer carcass is formed of lower modulus organic fiber cords (Column 3, Lines 5-15).

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Regarding claim 16, Oare teaches the well-known use of sulfur as a vulcanizing agent, suggesting an amount between 0.5 to 8.0 phr (Column 18, Lines 11-19).

3. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oare in view of Wolpers (US 5,342,900, of record), and optionally in view of Horpel (UEP 385703), and further in view of Saneto (US 5,158,627, newly cited). As stated in the previous paragraph, Oare is directed to a runflat tire having at least one sidewall insert radially inward of a carcass ply, wherein said sidewall insert is formed of a diene-based rubber composition. In describing the conventional additives of said sidewall insert composition, Oare describes the preferred use of (a) a sulfenamide as a primary accelerator and (b) either a guanidine, dithiocarbamate, or thorium compound as a secondary accelerator (Column 18, Lines 35-45). While Oare fails to expressly suggest the use of a specific dithiocarbamate compound (claimed as being 1,6-bis(N,N'-dibenzylthiocarbamotylidithio)-hexane or BDBzTH), one of ordinary skill in the art at the time of the invention would have found it obvious to include BDBzTH in the sidewall insert composition of Oare since it represents a well known compound that provides improved ageing stability and reversion stability in similar diene-based rubber compounds, as evidenced by Wolpers. In this instance, Wolpers specifically suggests the use of BDBzTH with either sulfenamide or mercapto accelerators for the general manufacture of tire rubber components (Column 4, Lines 4-21 and Column 5, Lines 16-29). Horpel is optionally applied to evidence the recognized use of similar dithiocarbamate compounds in tire sidewall compositions for similar benefits as compared to Wolpers, such as ageing resistance, high flexibility, and high resistance to cracking (Abstract). Lastly, regarding the composition of the sidewall insert, Oare

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(Column 16, Lines 26-61) describes a preferred composition having between 60 and 90 phr of natural rubber and between 10 and 40 phr of a synthetic rubber, such as polybutadiene (both 1,4 and 1,2 are suggested), wherein the 100% modulus is between 5 and 7 MPa. While these ranges (amount of each rubber) fall slightly outside of the claimed ranges, Oare is not restricted to this composition, as evidenced by the language "preferred composition". One of ordinary skill in the art at the time of the invention would have readily appreciated additional rubber compositions for the sidewall insert formed of natural rubber and polybutadiene rubber in accordance to the ranges of the claimed invention, such that said compositions provide the necessary properties (i.e. 100% modulus) desired for a runflat sidewall insert. For example, Saneto describes a similar runflat tire construction in which a sidewall insert is positioned inside of an innermost carcass ply, in an analogous manner to the claimed invention, and formed of between 30 and 45 phr of natural rubber and between 55 and 70 phr of polybutadiene rubber (Column 3, Lines 13-55). In this instance, such a rubber composition has a 100% modulus between 5.9 and 9.8 MPa, which encompasses the nearly the entire range of values suggested by Oare. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the sidewall insert with natural rubber and polybutadiene rubber in accordance to the limitations of the claimed invention, as further detailed below.

Regarding claims 17 and 19, Oare further suggests (n the sidewall insert composition) that (i) carbon black is included in an amount between 30 and 100 phr and (ii) a vulcanizing agent, such as sulfur, is included in an amount between 0.5 and 8.0 phr.

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Regarding claims 17 and 18, Wolpers suggests the use of BDBzTH in an amount between 1.0 and 4.5 phr (Column 4, Lines 25-30).

Lastly, regarding the sidewall insert composition, Saneto illustrates that rubber compositions having natural rubber and polybutadiene rubber within the claimed ranges are recognized as providing suitable properties to impart a desired degree of runflat operation. Though the polybutadiene component is not expressly disclosed as being formed of both 1,2 and 1,4 polybutadiene, Oare suggests the use of each of the polybutadiene rubbers in the runflat sidewall insert (Column 16, Lines 26-40). It is noted that one of ordinary skill in the art at the time of the invention would have recognized the polybutadiene of Oare as being syndiotactic polybutadiene. Thus, one of ordinary skill in the art at the time of the invention would have readily appreciated a polybutadiene component in the runflat insert of Oare between 50 and 80 phr, in view of Saneto, and furthermore, one of ordinary skill in the art would have readily appreciated the inclusion of both 1,2 and 1,4 polybutadiene to form said polybutadiene component in view of the recognition by Oare that each polybutadiene is a commonly used component in sidewall runflat inserts, there being no evidence of any unexpected results to establish a criticality for the claimed runflat rubber composition, regarding the base rubber composition (absent any additives).

Response to Arguments

4. Applicant's arguments filed May 20, 2003 have been fully considered but they are not persuasive. Applicant contends that Wolpers fails to suggest a rubber composition having a suitable level of stiffness to impart the desired degree of runflat reinforcement, particularly a 100% modulus between 5 and 7 MPa. Applicant further argues that,

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based on the teachings of Wolpers, one of ordinary skill in the art at the time of the invention would not expect a rubber composition containing BDBzTH to successfully meet the requirements for stiffness, as set forth by Oare.

Oare discloses a runflat sidewall insert composition having a primary accelerator, preferably a sulfenamide, and a secondary accelerator, such as a dithiocarbamate. While the reference fails to expressly disclose the specific dithiocarbamate of the claimed invention, Wolpers and Horpel evidence that it is well known to include the claimed dithiocarbamate additive in diene-based rubber compounds used in the tire industry. In particular, the references suggest that the inclusion of said dithiocarbamate compound results in, among other things, improved ageing stability and reversion stability, both of which are extremely desirable in rubber compositions used as sidewall inserts. Thus, the claimed dithiocarbamate additive, in view of Wolpers and Horpel, represents a suitable dithiocarbamate compound for use in tire rubber compositions and in view of the general suggestion by Oare to incorporate a dithiocarbamate compound, one of ordinary skill in the art at the time of the invention would have found it obvious to select the claimed dithiocarbamate for the sidewall insert composition, especially in view of the recognized benefits of the claimed dithiocarbamate.

While applicant contends that all the rubber compositions of Wolpers have a lower modulus than that required by Oare, Wolpers in no way suggests that the claimed dithiocarbamate additive is restricted to low modulus compositions. **It is initially noted that Wolpers is not applied to suggest a runflat rubber composition but rather to illustrate the well-known use of the claimed dithiocarbamate in tire rubber compositions.** The claimed dithiocarbamate is recognized by Wolpers as providing

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improved ageing stability and reversion resistance in rubber compositions of vehicle tires in general. One of ordinary skill in the art at the time of the invention would have readily appreciated the use of the claimed dithiocarbamate in a variety of rubber compositions having a variety of stiffness levels- in fact, Oare describes a runflat rubber composition having a modulus between 5 and 7 MPa and formed of, among other things, a secondary accelerator, such as a dithiocarbamate. Thus, the mere presence of the claimed dithiocarbamate does not necessarily form a rubber formulation having a low 100% modulus- the 100% modulus is more a function of the base elastomeric mixture, both specific components and quantities.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(703) 605-4397**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Justin Fischer

July 14, 2003


ADRIENNE C. JOHNSTONE
PRIMARY EXAMINER
GROUP 1300
Art Unit 1733